

Quarterly Industry Update

As of December 31, 2016

Industry: Monoclonal Antibodies



Industry Summary

Cogent Valuation identified Monoclonal Antibodies publicly traded companies, IPOs, and recent M&A transactions within the Monoclonal Antibodies industry, which provides a basis for market and transaction pricing that can be used by your firm in estimating market sentiment and its impact on your firm's value. Over the last year since December 31, 2015, the median 52-week share price return of the Monoclonal Antibodies industry was -43.7%. Between December 31, 2014 and December 31, 2016, the median EV/Revenue multiple decreased from 8.3 to 3.5. This industry is not profitable and all other valuation multiples based on profitability metrics were not meaningful.

Comparable Public Company Key Statistics

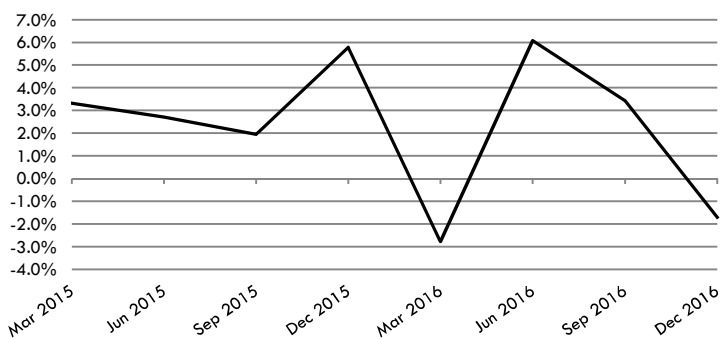
Median 52-Week Return **-43.7%** Median EV/Revenue Multiple **3.5x** Median 3-Year CAGR Return **-34.8%**

Comparable Public Company Market Price Returns As of December 31, 2016

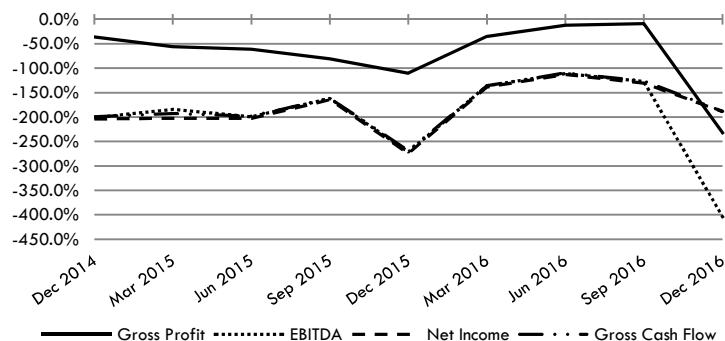
	YTD	3 Month	1 Year	2 Year	3 Year	5 Year	2015	2014	2013	2012	2011
Alder Biopharmaceuticals Inc.	-37.0%	-36.5%	-37.0%	-15.4%	N/A	N/A	13.5%	N/A	N/A	N/A	N/A
AVEO Pharmaceuticals, Inc.	-57.1%	-39.3%	-57.1%	-19.8%	-33.4%	-50.0%	50.0%	-54.1%	-77.3%	-53.2%	17.6%
Celldex Therapeutics, Inc.	-77.4%	-12.4%	-77.4%	-56.0%	-47.3%	6.4%	-14.1%	-24.6%	260.8%	158.1%	-36.9%
Halozyme Therapeutics, Inc.	-43.0%	-18.2%	-43.0%	1.2%	-13.0%	0.8%	79.6%	-35.6%	123.4%	-29.4%	20.1%
Immunomedics Inc.	19.5%	12.9%	19.5%	-12.6%	-7.3%	2.0%	-36.0%	4.3%	57.5%	-12.3%	-7.0%
Infinity Pharmaceuticals, Inc.	-82.8%	-13.5%	-82.8%	-71.7%	-53.9%	-31.3%	-53.5%	22.3%	-60.5%	295.9%	49.1%
Lpath Inc.	N/A	N/A	N/A	N/A	N/A	N/A	-91.9%	-33.8%	-15.6%	-39.4%	33.7%
Omeros Corporation	-36.9%	-11.1%	-36.9%	-36.7%	-4.2%	20.2%	-36.5%	119.5%	117.5%	31.4%	-52.1%
OncoMed Pharmaceuticals, Inc.	-65.8%	-32.5%	-65.8%	-40.5%	-36.1%	N/A	3.6%	-26.3%	N/A	N/A	N/A
PDL BioPharma, Inc.	-40.1%	-36.7%	-40.1%	-47.6%	-36.9%	-19.3%	-54.1%	-8.6%	19.9%	13.5%	-0.5%
Peregrine Pharmaceuticals, Inc.	-73.6%	-28.3%	-73.6%	-52.9%	-39.5%	-21.4%	-15.8%	0.0%	5.3%	28.2%	-55.2%
Repligen Corporation	8.9%	2.1%	8.9%	24.8%	31.2%	54.8%	42.9%	45.2%	117.2%	81.0%	-26.0%
Sorrento Therapeutics, Inc.	-43.7%	-36.7%	-43.7%	-30.2%	-15.4%	-0.4%	-13.5%	24.3%	116.0%	-25.0%	-66.7%
XOMA Corporation	217.3%	-54.0%	-84.1%	-75.8%	-68.5%	-28.8%	-63.0%	-46.7%	180.4%	108.7%	-77.6%
Median of Industry Public Companies	-43.0%	-28.3%	-43.7%	-36.7%	-34.8%	-0.4%	-15.0%	-8.6%	86.8%	20.9%	-16.5%

(Multiple year periods are calculated as the average annual return.)

Median Quarterly Revenue Growth of All Monoclonal Antibodies Companies



Median Gross Profit, EBITDA, Net Income and Gross Cash Flow Margins



Median Public Company Multiples of the Monoclonal Antibodies Industry

Date:	12/31/2014	3/31/2015	6/30/2015	9/30/2015	12/31/2015	3/31/2016	6/30/2016	9/30/2016	12/31/2016
EV/Revenues Multiple	8.3x	5.4x	5.1x	5.8x	3.1x	1.5x	2.1x	2.1x	3.5x

This industry research is provided at no charge to Cogent Valuation's clients. Research or detailed information not covered in this report can be obtained for a fee. Contact Steven Kam at 415-392-0888 for additional information or questions in connection with this research report. Copyright © 2017 Cogent Valuation. All Rights Reserved.

Quarterly Industry Update

As of December 31, 2016

Industry: Monoclonal Antibodies



Industry Initial Public Offerings (dollars in millions, except share prices)

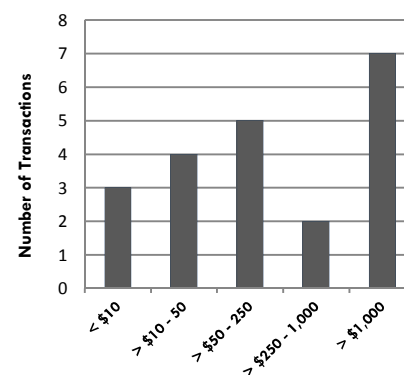
Offer Date	Company Name	Offer Price	Shares Offered	Amount Raised	Total Assets	Debt	LTM Revenues	LTM EBITDA	LTM Net Income	LTM Cash Flows
5/12/2016	Oncobiologics, Inc.	\$6.00	5.8	\$35.0	\$31.3	\$15.5	\$3.3	(\$56.6)	(\$59.4)	(\$54.4)
4/14/2016	GeNeuro SA	\$14.63	2.5	\$37.1	\$22.6	\$0.2	\$2.8	(\$4.7)	(\$4.9)	(\$4.6)
3/22/2016	Corvus Pharmaceuticals, Inc.	\$15.00	4.7	\$70.5	\$98.5	\$0.0	\$0.0	(\$13.6)	(\$31.3)	(\$13.5)
2/2/2016	BeiGene, Ltd.	\$24.00	6.6	\$158.4	\$135.6	\$20.6	\$5.5	(\$35.3)	(\$33.6)	(\$33.8)
12/10/2014	ALTEOGEN Inc.	\$23.53	0.9	\$21.2	\$14.9	\$1.2	\$6.2	\$1.4	\$1.2	\$1.4
11/13/2014	FibroGen, Inc.	\$18.00	8.1	\$145.8	\$344.4	\$114.1	\$133.9	(\$22.6)	(\$35.7)	(\$18.1)
Median of All IPOs		nm	nm	\$53.8	\$64.9	\$8.3	\$4.4	(\$18.1)	(\$32.5)	(\$15.8)

nm: not meaningful, N/A: not applicable

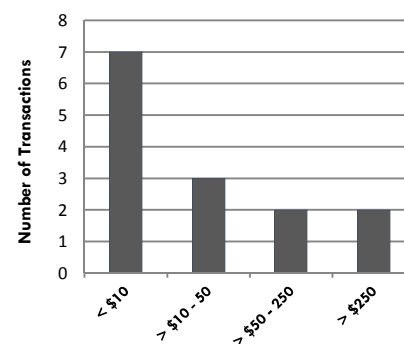
Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions)

Transaction Date	Target	Acquirer	Transaction Size	% Bought	LTM Revenues	EV/Revenues
12/20/2016	Ganymed Pharma	Astellas Pharma Inc.	\$1,401.6	100%	\$20.8	67.5x
6/30/2016	EPIDUS Biopharmaceuticals	Polpharma SA Pharmaceutical	\$3.5	100%	N/A	N/A
5/31/2016	Effimune SA	OSE Pharma SA	\$34.4	100%	N/A	N/A
4/18/2016	Biotie Therapies Corp.	Acorda Therapeutics, Inc.	\$341.6	100%	\$4.1	62.7x
1/22/2016	Dyax Corp.	Shire Pharmaceuticals	\$5,886.3	100%	\$97.5	57.2x
1/8/2016	Open Monoclonal Tech.	Ligand Pharmaceuticals	\$178.0	100%	N/A	N/A
11/23/2015	AxioMx Inc.	Abcam Plc	\$45.2	100%	N/A	N/A
10/30/2015	BioNovion B.V.	Aduro Netherlands	\$60.1	100%	\$6.6	9.2x
9/11/2015	PacificGMP, Inc.	Abzena Inc.	\$8.4	100%	\$3.0	2.8x
6/1/2015	X-BODY, Inc.	Juno Therapeutics, Inc.	\$42.8	100%	N/A	N/A
3/12/2015	KBI Biopharma Inc.	JSR Corporation; CMIC	\$100.0	100%	N/A	N/A
3/3/2015	SuppreMol GmbH	Baxter International Inc.	\$223.9	100%	N/A	N/A
9/23/2014	CFR Pharmaceuticals	Abbott Investments	\$2,659.3	73%	\$782.3	4.3x
4/30/2014	Shanghai PrimeGene	R&D Systems China	\$18.8	100%	\$4.0	4.7x
12/31/2013	Santarus, Inc.	Salix Pharmaceuticals	\$2,154.4	100%	\$337.8	5.9x
2/8/2013	YM BioSciences Inc.	Gilead Sciences Inc.	\$482.9	100%	\$1.1	N/A
8/2/2012	Human Genome Sciences Inc.	GlaxoSmithKline plc	\$3,674.4	100%	\$151.5	21.1x
4/18/2012	Epitomics, Inc.	Abcam Plc	\$153.9	100%	\$24.7	6.2x
3/5/2012	Micromet, Inc.	Amgen Inc.	\$1,016.4	100%	\$21.9	39.1x
2/10/2012	Inhibitex, Inc.	Bristol-Myers Squibb	\$2,579.0	100%	\$2.1	N/A
5/24/2011	MitoSciences Inc.	Abcam Plc	\$6.0	100%	\$2.1	2.9x
Median of the 21 M&A Transaction Targets			\$178.0	100%	\$13.7	7.7x

Size of M&A Transactions



LTM Revenues Reported



Definitions of Financial Terms Used in this Quarterly Industry Update:

Enterprise Value (EV): Market Value of Equity + Market Value of Debt - Cash

Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA): Profitability metric sometimes also referred to as operating profit or operating earnings.

Gross Cash Flows: Net Income + Depreciation and Amortization Expense

Latest Twelve Months (LTM): Financial information is as of the latest twelve months through the date of this Quarterly Industry Update.

Disclosures and Limitations: This research report is for informational and discussion purposes only. Information presented herein is not investment advice of any kind to any person and does not constitute a recommendation as to the purchase or sale of any interests or as to any other course of action. General, financial, and statistical information concerning the details of this report and related industry are from sources Cogent Valuation believes to be reliable. Cogent Valuation has accurately reflected such information in this research report; however, Cogent Valuation makes no representation as to the sources' accuracy or completeness and has accepted this information without further verification. Neither all nor any part of the content of this report may be conveyed to the public through advertising, public relations, news, sales, mail, direct transmittal, or other media without the prior written consent of Cogent Valuation. Cogent Valuation's research is as of the date reported herein. Cogent Valuation has no affiliation with any of the companies comprising the industry used as a basis for research in this report, nor does Cogent Valuation hold any investments in the companies listed herein. The content of this report may be used, in part, as a basis for any work that Cogent Valuation performs for you in the future at the sole discretion of Cogent Valuation. THIS REPORT IS NOT TO BE USED OR CONSIDERED UNDER ANY CIRCUMSTANCE BY ANYONE AS INVESTMENT ADVICE. This industry research is provided at no charge to Cogent Valuation's clients. Research or detailed information not covered in this report can be obtained for a fee. Contact Steven Kam at 415-392-0888 for additional information or questions in connection with this research report. Copyright © 2017 Cogent Valuation. All Rights Reserved.